

## ON CERTAIN SPECIES OF FISHES CONFUSED WITH BRYOSTEMMA POLYACTOCEPHALUM.

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Some confusion has arisen in the works of recent authors concerning the identity of a species of Blenny, described by Pallas<sup>1</sup> as *Blennius polyactcephalus*. Dr. Tarleton H. Bean<sup>2</sup> figured a blenny from Alaska which he believed to be identical with the species named by Pallas. Herzenstein<sup>3</sup> described *Chirolophus japonicus*, a supposed new species from Hakodate, Japan, which Jordan and Evermann regard as synonymous with the *Blennius polyactcephalus* of Pallas. Again, Jordan and Starks<sup>4</sup> described a specimen from near Seattle as *Bryostemma polyactcephalum*, applying for the first time the generic name *Bryostemma*, the type of which is the species described. Other fishes supposed to belong to the same form are also recorded. Later, Jordan and Gilbert<sup>5</sup> identified a specimen from Petropaulski, stating that it agreed perfectly with the description given by Pallas. Jordan and Evermann<sup>6</sup> examined the specimens here mentioned, except the ones possessed by Bean and by Herzenstein, referring all to the species *Bryostemma polyactcephalum*, not, however, without considerable doubt, remarking that they "show a great deal of variation and possibly represent three different species."

A reexamination of the same material shows that four entirely distinct species were represented in the collection, as will appear. The example from Petropaulski, identified by Jordan and Gilbert, belongs

<sup>1</sup> Pallas, Zoographia Rosso-Asiatica, III, 1811, p. 179.

<sup>2</sup> Bean in Nelson, Report upon Natural History Collections made in Alaska, 1887, p. 305, pl. xv, fig. 2.

<sup>3</sup> Herzenstein, Mélanges Biologiques tirés du Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg, XIII, 1890, p. 123.

<sup>4</sup> Jordan and Starks, The Fishes of Puget Sound, Proceedings of the California Academy of Sciences, 1895, p. 841.

<sup>5</sup> Jordan and Gilbert, Fishes of Bering Sea, in Report of the Fur-Seal Investigations, Pt. 3, p. 479.

<sup>6</sup> Jordan and Evermann, Fishes of North and Middle America, III, p. 2408.

without doubt to the species described by Pallas. It agrees in every detail with the account given by that author and also equally well, as Jordan and Gilbert say, with *Chirolophus japonicus* of Herzenstein. The specimen figured by Bean differs from the one described by Pallas, as is shown in the following pages. That described by Jordan and Starks and indicated as the type of the genus *Bryostemma* is identical with the form figured by Bean. It becomes the type of a new species, *Bryostemma decoratum*. Of the specimens collected by the U. S. Fish Commission steamer *Albatross* in Alaska, and recorded by Jordan and Starks and later by Jordan and Evermann, the one having "the cheeks covered with densely matted cirri" proves to be a new species, *Bryostemma tarsodes*. The others cited as young examples belong to a different genus, now recognized for the first time as *Bryolophus*. The species being new, may be known as *Bryolophus lysimus*.

Descriptions of the new forms are here given.

**BRYOSTEMMA TARSOIDES** Jordan and Snyder, new species.

*Bryostemma polyactocephalum* JORDAN and STARKS, Proc. Cal. Acad. Sci., 1895, p. 841 (in part).—JORDAN and EVERMANN, Fish. North and Middle America, III, p. 2408 (in part).

Head  $6\frac{2}{3}$  in length; depth  $6\frac{1}{2}$ ; depth of caudal peduncle 3 in head; eye  $3\frac{1}{2}$ ; interorbital space 7; snout 5; dorsal LX; anal I, 45.

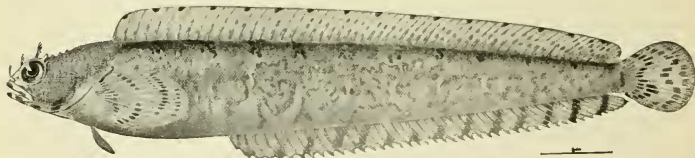


FIG. 1.—BRYOSTEMMA TARSOIDES.

Interorbital space broad, convex; snout short, jaws equal; maxillary extending to a vertical through posterior border of orbit. Teeth rather strong, acutely conical, placed alternately in 2 closely apposed rows, the points nearly aligned in a single cutting edge; no teeth on vomer and palatines. Gill-membranes forming a broad fold across the isthmus. Pseudobranchiæ large; gill-rakers on first arch about 15, short, broad, pointed, close together.

Body covered with minute scales, the head naked; membranes of fins without scales. Lateral line represented by a short row of 5 pores above the gill-openings, the pores concealed by papillæ. Cheeks, snout, and whole upper part of head closely covered with tentacles and papillæ. Snout with a median branched tentacle; upper border of orbit with three large, branched tentacles, the first not united with its fellow of the opposite side, the second highest, its length equal to vertical diameter of the eye, third short and club-shaped; on the

interorbital space between the anterior pair of orbital tentacles is a minute, blunt, papilla; posterior to this and between the second pair is a somewhat larger one; behind the latter and between the third pair of orbital tentacles is a pair of short, stocky tentacles; behind these are two transverse rows of similar protuberances, five in the first and three in the second row; the whole occiput and nape, the sides of the head, the cheeks, and suborbital area covered with pointed, fleshy villi; a small barbel on posterior end of maxillary; a pair of branched tentacles on chin followed by a similar one on posterior half of jaw; a prominent barbel on suborbital area. Nostrils with slender, pointed tubes.

Dorsal inserted above the gill-opening, the membrane not scalloped between the spines, scarcely connected with the caudal posteriorly; two or three anterior spines probably with small terminal tentacles (the fin being slightly injured, the character of the first spines can not be exactly determined, but if tentacles are present they do not extend beyond the third spine); height of spines near middle of fin  $2\frac{1}{2}$  in head. Anal inserted below base of fourteenth dorsal spine, the membrane incised between the rays, not joined to the caudal, height of rays near middle of fin, 3 in head. Caudal rounded,  $1\frac{1}{2}$  in head. Pectoral  $1\frac{1}{2}$  in head. Ventrals 3 in head.

Color in spirits, light yellowish brown, with irregular whitish spots along the sides; a row of 10 indistinct, brownish bars along back between nape and tail; side of head with 2 or 3 indistinct vertical bars; edge of dorsal with small, widely spaced, brown spots; anal with about 13 large spots; caudal and pectoral with irregular, vertical bars.

Known from only one specimen 115 mm. long, taken by the U. S. Fish Commission steamer *Albatross* at Station 3213, near Unalaska, Alaska. Type 50570, U. S. National Museum.

The species may be distinguished at once among others of the genus by having the sides of the head covered with a dense mat of barbels. (*ταρσώδης*, matted.)

**BRYOSTEMMA DECORATUM** Jordan and Snyder, new species.

*Chirolophus polyactcephalus* BEAN in Nelson, Report Nat. Hist. Coll. Alaska, 1887, p. 305, pl. xv, fig. 2.

*Bryostemma polyactcephalum* JORDAN and STARKS, Proc. Cal. Acad. Sci., 1895, p. 841 (in part).—JORDAN and EVERMANN, Fish. North and Middle Amer., III, p. 2408 (in part), fig. 828; the specimen from Neah Bay represents this species.

Head  $6\frac{3}{4}$  in length; depth  $6\frac{1}{3}$ ; depth of caudal peduncle  $3\frac{1}{2}$  in head; eye  $4\frac{1}{2}$ ; interorbital space 9; snout  $4\frac{1}{2}$ ; dorsal LXII; anal I, 44.

Body elongate, greatly compressed; head small, the snout blunt. Jaws about equal, the lower projecting slightly. Maxillary extending to vertical through center of pupil. Teeth of jaws placed alternately in two very closely apposed series, the points aligned to form a single

cutting edge; no teeth on vomer or palatines. Gill-membranes forming a broad, somewhat V-shaped fold across the isthmus. Pseudo-branchiæ large; gillrakers small, slender, about 15 on the first arch.

Body covered with minute, cycloid scales; membranes of fins without scales; head naked. Lateral line represented by a short row of 9 or 10 pores, extending backward from above gill opening, each pore below a minute villus. Nostrils with slender pointed tubes. Head and nape with many tentacles; a large pair on anterior part of interorbital space, joined at their bases, fringed at tip and along the sides, their height about two times the diameter of eye; posterior border of interorbital space with three short tentacles, the outer one rather broad and branched, the inner one slender and pointed; occiput and nape as far back as base of third dorsal spine with many pointed tentacles, none of which is branched; symphysis of lower jaw with a pair of minute villi; none along sides of jaws; a few small villi along edges of opercle and preopercle.

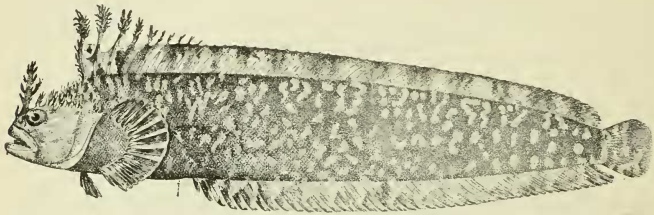


FIG. 2.—*BRYOSTEMMA DECORATUM*.

Dorsal fin inserted immediately above upper edge of gill-opening, the membrane broadly scalloped between the first five spines, not incised between the other spines, joined to base of caudal rays; first spine with small villi on its anterior edge; first eight or nine spines with branched tentacles extending upward from their tips, the anterior tentacle highest, the others growing gradually shorter to the last, which scarcely projects above the fin; spines near middle of fin contained about two and one-third times in the head. Anal inserted below base of seventeenth dorsal spine, the spine weak and small, the membrane deeply incised between the rays, not joined to caudal; length of rays near middle of fin 3 in head. Caudal rounded, the rays below middle of fin slightly longer than those above, the longest contained one and three-fifths times in the head. Pectoral rounded, its length about equal to that of the head. Ventrals narrow, the length contained about two and three-fifths times in the head.

Color plain; about twelve very indistinct small brownish spots on the dorsal; the anterior is the most prominent; six or seven faint dark spots on posterior half of anal; cirri on upper part of head faintly marked with brown.

Described from a specimen 160 mm. long, collected by Prof. O. B. Johnson at Point Orchard, near Seattle, Washington.

*Type*.—No. 3156, Ichthyological collections, Stanford University.

The type resembles closely the specimen figured by Bean, except that the dorsal is not inserted quite so far forward as there represented, the pectoral is shorter, and the body and fins are not spotted with white. The type is evidently a faded example which was more brightly colored in life.

This species closely resembles *Bryostemma polyactoecephalum*, the character of the filaments, however, serving to distinguish them. In the latter species the posterior interorbital pair are higher than the anterior ones, many of the occipital ones are branched, there are a number on the sides of the jaws, and those on the dorsal fin are fewer, smaller, and less ornate. The species in hand is a much more slender and less stoutly built form.

(*decoratum*, ornamented.)

#### BRYOLOPHUS Jordan and Snyder, new genus.

The genus for which the above name is proposed is represented by *Bryolophus lysimus*, a new species. It is apparently closely related to *Bryostemma*, from which it is distinguished by having the teeth in bands instead of in two closely apposed series with the tips aligned to form a single cutting edge.

Body elongate, compressed; mouth small; gill-membranes forming a fold across the isthmus; teeth in narrow bands on the jaws; no teeth on the vomer and palatines; body with minute scales, the head naked; lateral line represented by a short series of pores above the pectoral; interorbital space and occiput with cirri; dorsal inserted above gill-opening, of spines throughout; ventrals jugular; caudal distinct.

(*βρύον*, moss; *λόφος*, crest.)

#### BRYOLOPHUS LYSIMUS Jordan and Snyder, new species.

*Bryostemma polyactoecephalum* JORDAN and STARKS, Proc. Cal. Acad. Sci., 1895, p. 841 (in part).—JORDAN and EVERMANN, Fish. North and Middle America, III, p. 2408 (in part).

Head 6 in length; depth  $6\frac{1}{2}$ ; depth of caudal peduncle  $4\frac{1}{5}$  in head; eye 4; interorbital space 10; snout  $4\frac{1}{2}$ ; dorsal LXI; anal I, 48.

Snout short, blunt; mouth rather small, the maxillary extending to anterior edge of orbit, the lower jaw projecting slightly. Teeth small, acutely conical, in narrow bands on the jaws, none on vomer and palatines. Gill-openings forming a somewhat V-shaped fold across the isthmus. Pseudobranchiæ large; gillrakers on first arch 18, rather long and pointed.

Body with minute scales; membranes of fins naked, or with a few scales on basal parts; head naked. Lateral line represented by a series

of 7 or 8 pores above the gill-opening. Upper part of head with cirri and tentacles; a long, slender, median tentacle on snout, two pairs of branched ones on the interorbital space, the anterior ones united at their bases, the posterior pair widely separated, as high as, or higher than the others; occiput and nape with very slender, long cirri; sides of head naked; chin with a pair of small barbels.

Dorsal inserted above gill-opening, not united to base of caudal, the first three or four spines with small, terminal tentacles; height of spines near middle of fin  $2\frac{1}{2}$  in head. Anal inserted below base of seventeenth dorsal spine, not connected with base of caudal, the membrane incised between tips of rays; height of rays near middle of fin 3 in head. Caudal acutely rounded,  $1\frac{1}{3}$  in head. Pectoral  $1\frac{1}{2}$  in head. Ventrals 3 in head.

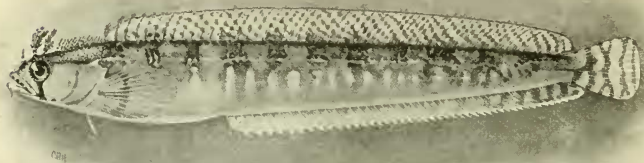


FIG. 3.—*BRYOLOPHUS LYSIMUS*.

Color in spirits, yellowish white; the body with about 14 indistinct vertical brownish bands, the upper parts of which are darker, appearing as a series of blotches below base of dorsal; a faint, brownish band extending downward from eye; tentacles and cirri brownish; dorsal finely mottled with brownish, a rather distinct spot above tip of pectoral; caudal with narrow, irregular wavy bands; anal with a few faint spots on posterior part.

Described from the type, No. 50571, U. S. National Museum, a specimen about 100 mm. long collected by the U. S. Fish Commission steamer *Albatross* at Station 3213, near Unalaska. Two other specimens are very similar in color. They have 62 and 63 dorsal spines and 48 and 49 anal rays, respectively. These examples bear the cotype No. 3049, Ichthyological collections, Stanford University.

(*λύσιμος*, restorable.)